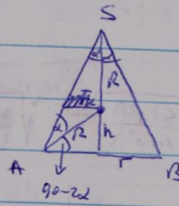
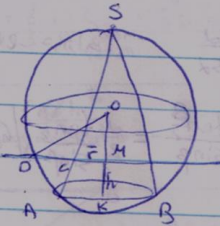


3.66
S



$$113) - R$$

$$h_{\text{cm}} - r$$

אין הציור - \bar{r}
הוא המרחק
הממוצע

$$AB = 2r = 2R \cos(90 - 2\alpha) = 2R \sin 2\alpha$$

$$h_{\text{cm}} = h + R = R \sin(90 - 2\alpha) + R = R + R \cos 2\alpha$$



$$\frac{\bar{h}}{h_{\text{cm}}} = \frac{\bar{r}}{r_{\text{cm}}} \quad \text{OKR א"י}$$

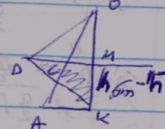
$$\bar{h} = \frac{h_{\text{cm}} \cdot \bar{r}}{r_{\text{cm}}} = \frac{(R + R \cos 2\alpha) \bar{r}}{R \sin 2\alpha} = \frac{(1 + \cos 2\alpha) \bar{r}}{\sin 2\alpha} = \frac{2 \cos^2 \alpha \bar{r}}{\sin 2\alpha} = \cot \alpha \cdot \bar{r}$$

$$S_{\text{APG}} = \pi R^2 - \pi \bar{r}^2 =$$

$$DH = 2R - 2R \cos 2\alpha = 2R \sin^2 \alpha$$

$$OM = R_1$$

$$OM = h_{\text{cm}} - \bar{h}$$



$$OM = SO - MO - MK = h_{\text{cm}} - R - (h_{\text{cm}} - \bar{h}) = \bar{h} - R = \cot \alpha \bar{r} - R$$

$$R_1 = \sqrt{OM^2 + OM^2} = \sqrt{R^2 - (\cot \alpha \bar{r} - R)^2} = \sqrt{2R \cot \alpha \bar{r} - \cot^2 \alpha \bar{r}^2}$$

$$S_{\text{APG}} = \pi (R^2 - \bar{r}^2)$$

$$= \pi (2R \cot \alpha \bar{r} - \cot^2 \alpha \bar{r}^2 - \bar{r}^2)$$

$$S' = \pi (2R \cot \alpha - 2\bar{r} \cot^2 \alpha - 2\bar{r}) = 0$$

$$r = \frac{2R \cot \alpha}{2 \cot^2 \alpha + 2} = \frac{R \cot \alpha}{1 + \cot^2 \alpha} = \frac{R \frac{\cos \alpha}{\sin \alpha}}{\frac{\cos^2 \alpha + \sin^2 \alpha}{\sin^2 \alpha}} = \frac{1}{2} R \sin 2\alpha$$

$$\bar{h} = \cot \alpha \cdot \bar{r} = \cot \alpha \cdot \frac{1}{2} R \sin 2\alpha = \frac{\cos \alpha}{\sin \alpha} \cdot \frac{1}{2} \cdot R \cdot 2 \sin \alpha \cos \alpha = R \cos^2 \alpha$$